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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/587,727	06/05/2000	Nandu Gopalakrishnan	2-11-6	7894

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WILLIAMS, MORGAN & AMERSON, P.C.
10333 RICHMOND, SUITE 1100
HOUSTON, TX 77042

EXAMINER
BURD, KEVIN MICHAEL

ART UNIT	PAPER NUMBER
2631	8

DATE MAILED: 02/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/587,727	GOPALAKRISHNAN ET AL.	
	Examiner	Art Unit	
	Kevin M Burd	2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 September 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17 and 28-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *18-27 and 39-48* are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 March 2002* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4* .
4) ☒ Interview Summary (PTO-413) Paper No(s). *7* .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

   I. Claims 1-17 and 28-38, drawn to a method of transmitting encoded information, classified in class 375, subclass 295.

   II. Claims 18-27 and 39-48, drawn to a method of receiving encoded information, classified in class 375, subclass 316.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention I has separate utility such as invention I is capable of transmitting information to other types of receivers than those described in invention II. See MPEP § 806.05(d).

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

3. During a telephone conversation with Steve Gurey on 8/25/2003 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-17 and 28-38. Affirmation of this election must be made by applicant in replying to this Office action. Claims 18-27 and 39-48 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Information Disclosure Statement

4. The information disclosure statement (IDS) was submitted on 1/8/2002. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

5. The drawings were received on 3/5/2002. These drawings are objected to as stated below.

The drawings are objected to under 37 CFR 1.83(a) because they fail to show time slots 60, 62, 64, 66, 68, 70, 72 and 74 as stated on page 2, lines 4-10 in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

6. The abstract of the disclosure is objected to because the abstract comprises two paragraphs. The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-4 and 28-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meyer (US 5,541,595) in view of Pollman (US 5,233,348).

Regarding claims 1 and 28, Meyer discloses a method of encoding messages (column 1, lines 31-45). The messages are separated into groups as shown in table 1. Table 1 shows messages (CODES) S1, S2, S3, S4, S5 and S6 and their associated Huffman code. S1, S2 and S3 are converted into 2 bit messages. This is a first group. S5 and S6 are converted into 4 bit messages. This is a second group. The number of messages in the first group is unequal to the number of messages in the second group. These messages (Huffman codes) will be transmitted (column 2, lines 11-16).

Meyer does not disclose the second group of messages is based on a prior transmitted message. However, Pollman discloses, "Huffman coding is an optimum statistical coding procedure capable of approaching the theoretical entropy limit, given prior knowledge of the probability of all possible events. The encoder can generate such probability distributions and send them to the decoder prior to transmission of a given frame. This table is used to derive Huffman code words where relatively short code words are assigned to events with the highest probability of occurrences." This is disclosed in column 7 lines 24-38 of Pollman. Therefore, the probability distribution is sent to the decoder prior to the transmission of the messages (frame) and the grouping based on probability is based on the distribution found in this transmission.

Since Pollman discloses fundamental components of Huffman coding, it would have been obvious for one of ordinary skill in the art at the time of the invention to include the teachings of Pollman in the coding system of Meyer. Pollman simply elaborates on necessary information for Huffman codes to function properly.

Regarding claims 2 and 29, Meyer discloses a first number of bits (two) are used to represent messages in the first group, which is different than a second number of bits (four) used to represent messages in the second group as shown in table 1.

Regarding claims 3 and 30, Meyer discloses a message from the first group has a higher probability of being transmitted than a message from the second group since codes having high probabilities of occurrence are converted into Huffman codes of short bit length as stated in column 2, lines 11-16).

Regarding claims 4 and 31, Meyer discloses the number of bits used to represent messages in the first group is lower than the number of bits used to represent messages in the second group since codes having high probabilities of occurrence are converted into Huffman codes of short bit length as stated in column 2, lines 11-16).

8. Claims 5-9 and 32-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meyer (US 5,541,595) in view of Pollman (US 5,233,348) further in view of Padovani (US 6,411,799).

Regarding claims 5 and 32, Meyer discloses a method of encoding messages (column 1, lines 31-45). The messages are separated into groups as shown in table 1. Table 1 shows messages (CODES) S1, S2, S3, S4, S5 and S6 and their associated Huffman code. S1, S2 and S3 are converted into 2 bit messages. This is a first group. S5 and S6 are converted into 4 bit messages. This is a second group. The number of messages in the first group is unequal to the number of messages in the second group. These messages (Huffman codes) will be transmitted (column 2, lines 11-16).

Meyer does not disclose the second group of messages is based on a prior transmitted message. However, Pollman discloses, "Huffman coding is an optimum statistical coding procedure capable of approaching the theoretical entropy limit, given prior knowledge of the probability of all possible events. The encoder can generate such probability distributions and send them to the decoder prior to transmission of a given frame. This table is used to derive Huffman code words where relatively short code words are assigned to events with the highest probability of occurrences." This is

disclosed in column 7 lines 24-38 of Pollman. Therefore, the probability distribution is sent to the decoder prior to the transmission of the messages (frame) and the grouping based on probability is based on the distribution found in this transmission.

Since Pollman discloses fundamental components of Huffman coding, it would have been obvious for one of ordinary skill in the art at the time of the invention to include the teachings of Pollman in the coding system of Meyer. Pollman simply elaborates on necessary information for Huffman codes to function properly.

The combination above does not disclose the first group is transmitted at a different power than the second group. However, it is obvious for one of ordinary skill in the art at the time of the invention to know that any group with fewer bits will be transmitted at lower power than a message with more bits. This is shown in column 1, lines 60-65 of Padovani. Padovani states a system increases capacity by transmitting fewer bits thereby using less power. It requires power to transmit a bit and the fewer that are transmitted, the less power will be used.

Regarding claims 6 and 33, Meyer discloses a first number of bits (two) are used to represent messages in the first group, which is different than a second number of bits (four) used to represent messages in the second group as shown in table 1.

Regarding claims 7 and 34, Meyer discloses a message from the first group has a higher probability of being transmitted than a message from the second group since codes having high probabilities of occurrence are converted into Huffman codes of short bit length as stated in column 2, lines 11-16).

Regarding claims 8, 9, 35 and 36, Meyer discloses the number of bits used to represent messages in the first group is lower than the number of bits used to represent messages in the second group since codes having high probabilities of occurrence are converted into Huffman codes of short bit length as stated in column 2, lines 11-16).

9. Claims 10-13 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meyer (US 5,541,595) in view of Pollman (US 5,233,348) further in view of Berger (US 2001/0012271).

Regarding claims 10 and 37, Meyer discloses a method of encoding messages (column 1, lines 31-45). The messages are separated into groups as shown in table 1. Table 1 shows messages (CODES) S1, S2, S3, S4, S5 and S6 and their associated Huffman code. S1, S2 and S3 are converted into 2 bit messages. This is a first group. S5 and S6 are converted into 4 bit messages. This is a second group. The number of messages in the first group is unequal to the number of messages in the second group. These messages (Huffman codes) will be transmitted (column 2, lines 11-16).

Meyer does not disclose the second group of messages is based on a prior transmitted message. However, Pollman discloses, "Huffman coding is an optimum statistical coding procedure capable of approaching the theoretical entropy limit, given prior knowledge of the probability of all possible events. The encoder can generate such probability distributions and send them to the decoder prior to transmission of a given frame. This table is used to derive Huffman code words where relatively short code words are assigned to events with the highest probability of occurrences." This is

disclosed in column 7 lines 24-38 of Pollman. Therefore, the probability distribution is sent to the decoder prior to the transmission of the messages (frame) and the grouping based on probability is based on the distribution found in this transmission.

Since Pollman discloses fundamental components of Huffman coding, it would have been obvious for one of ordinary skill in the art at the time of the invention to include the teachings of Pollman in the coding system of Meyer. Pollman simply elaborates on necessary information for Huffman codes to function properly.

The combination stated above does not discloses the encoded data is a rate request signal. Berger discloses transmitting a rate request signal is useful to change the present rate of data being transmitted (paragraph 0011). It would have been obvious for one of ordinary skill in the art to include the teachings of Berger into the combination of Meyer and Pollman. By changing the transmission rate via a rate request signal, a change of data rate can occur when it is not necessary to transmitted data at higher transmission rates and therefore lower power consumption or to raise transmission rates to ensure all information is received quicker.

Regarding claim 11, Meyer discloses a first number of bits (two) are used to represent messages in the first group, which is different than a second number of bits (four) used to represent messages in the second group as shown in table 1.

Regarding claim 12, Meyer discloses a message from the first group has a higher probability of being transmitted than a message from the second group since codes having high probabilities of occurrence are converted into Huffman codes of short bit length as stated in column 2, lines 11-16).

Regarding claim 13, Meyer discloses the number of bits used to represent messages in the first group is lower than the number of bits used to represent messages in the second group since codes having high probabilities of occurrence are converted into Huffman codes of short bit length as stated in column 2, lines 11-16).

10. Claims 14-17 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meyer (US 5,541,595) in view of Pollman (US 5,233,348) further in view of Berger (US 2001/0012271) further in view of Padovani (US 6,411,799).

Regarding claims 14 and 38, Meyer discloses a method of encoding messages (column 1, lines 31-45). The messages are separated into groups as shown in table 1. Table 1 shows messages (CODES) S1, S2, S3, S4, S5 and S6 and their associated Huffman code. S1, S2 and S3 are converted into 2 bit messages. This is a first group. S5 and S6 are converted into 4 bit messages. This is a second group. The number of messages in the first group is unequal to the number of messages in the second group. These messages (Huffman codes) will be transmitted (column 2, lines 11-16).

Meyer does not disclose the second group of messages is based on a prior transmitted message. However, Pollman discloses, "Huffman coding is an optimum statistical coding procedure capable of approaching the theoretical entropy limit, given prior knowledge of the probability of all possible events. The encoder can generate such probability distributions and send them to the decoder prior to transmission of a given frame. This table is used to derive Huffman code words where relatively short code words are assigned to events with the highest probability of occurrences." This is

disclosed in column 7 lines 24-38 of Pollman. Therefore, the probability distribution is sent to the decoder prior to the transmission of the messages (frame) and the grouping based on probability is based on the distribution found in this transmission.

Since Pollman discloses fundamental components of Huffman coding, it would have been obvious for one of ordinary skill in the art at the time of the invention to include the teachings of Pollman in the coding system of Meyer. Pollman simply elaborates on necessary information for Huffman codes to function properly.

The combination stated above does not discloses the encoded data is a rate request signal. Berger discloses transmitting a rate request signal is useful to change the present rate of data being transmitted (paragraph 0011). It would have been obvious for one of ordinary skill in the art to include the teachings of Berger into the combination of Meyer and Pollman. By changing the transmission rate via a rate request signal, a change of data rate can occur when it is not necessary to transmitted data at higher transmission rates and therefore lower power consumption or to raise transmission rates to ensure all information is received quicker.

The combination above does not disclose the first group is transmitted at a different power than the second group. However, it is obvious for one of ordinary skill in the art at the time of the invention to know that any group with fewer bits will be transmitted at lower power than a message with more bits. This is shown in column 1, lines 60-65 of Padovani. Padovani states a system increases capacity by transmitting fewer bits thereby using less power. It requires power to transmit a bit and the fewer that are transmitted, the less power will be used.

Regarding claim 15, Meyer discloses a first number of bits (two) are used to represent messages in the first group, which is different than a second number of bits (four) used to represent messages in the second group as shown in table 1.

Regarding claim 16, Meyer discloses a message from the first group has a higher probability of being transmitted than a message from the second group since codes having high probabilities of occurrence are converted into Huffman codes of short bit length as stated in column 2, lines 11-16).

Regarding claim 17, Meyer discloses the number of bits used to represent messages in the first group is lower than the number of bits used to represent messages in the second group since codes having high probabilities of occurrence are converted into Huffman codes of short bit length as stated in column 2, lines 11-16).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Masuo (US 2002/0057742 discloses in paragraph 0002, a coding system of giving short codes to symbols having higher probability of generation and longer codes to symbols having a high probability of generation to reduce the amount of data transmitted.

Conclusion

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9314, (for formal communications intended for entry or for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Burd, whose telephone number is (703) 308-7034. The Examiner can normally be reached on Monday-Thursday from 9:00 AM - 6:00 PM.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3800.

Kevin M. Burd
PATENT EXAMINER
2/14/2004